

Data Structure Recitation

Midterm, Binary Search Tree

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Midterm

- ▶ A2 - A5
- ▶ B4, B5
- ▶ C1

Collatz conjecture

- ▶ If the number is even, divide it by two.
- ▶ If the number is odd, triple it and add one.

$c(3) = \{3, 10, 5, 16, 8, 4, 2, 1\}$

$c(7) = \{7, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1\}$

Binary Search Tree

In computer science, binary search trees (BST), sometimes called ordered or sorted binary trees, are a particular type of containers: data structures that store "items" (such as numbers, names etc.) in memory.¹

Binary search trees keep their keys in sorted order.

- ▶ MAX(left subtree) is less than the parent.
- ▶ MAX(right subtree) is larger than the parent.

¹https://en.wikipedia.org/wiki/Binary_search_tree

Operations on BST

- ▶ construct a BST.
- ▶ addition
- ▶ removal

Operations on BST

- ▶ Preorder traversal
- ▶ Inorder traversal
- ▶ Postorder traversal

Question

Question?